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**Abdel Hadi KASSIBA** graduated from le Mans University and Caen University where he obtained MSC (1982) in “Solid State Physics and Atomic Physics” and **PhD** degree in “Solid State Physics” (Award of CNRS 1986) and obtained Habilitation Diploma for Professor qualification in Le Mans University.

**Professional experience**

- *Assistant professor in the University of Marrakech Morocco (1986-1989)*
- *Assistant professor in the University of Le Mans 1989-1990*
- *Professor at the University of Le Mans since 1991*
- *Since 2009, Director of the Physics Department*

A.Kassiba is a **Researcher** in the Laboratory of Physics of Condensed Matter (LPEC) affiliated to the French National Centre of Scientific Research CNRS (UMR-6087) and in the Institute of Molecular Engineering and Functional Materials IRIM2F (FR-CNRS 2575) in Le Mans

**Main research areas** are devoted to **Physics of Nanomaterials** of Silicon Carbide , **Nanocomposites** for **Nonlinear Optics and electrooptics**, **Functional mesoscopic materials**, **Titanium dioxide based powders and gels** and **EPR Spectroscopy**.

*A. Kassiba is **Author** of more than 50 peer review papers (Impact Factor=1.5 to 4.1), contributions in 3 books and gives 15 Invited International conferences, 30 Oral presentations and seminars in international conferences and ensure several session Chairman in International conferenes (Morocco, Poland, Tunisia, Romania, France). Supervisor of 23 Master of Sciences thesis and 6 PhD doctorants.*

*A.Kassiba is reviewer of several international journals (Physical Review Letters, Physical Review B (USA), J.Materials Science (USA), Diamond & Rel.Materials , J.Phys.Chem.Solids (GB) , Materials Sciences & Engineering B , Europhysical letters (France), Optics & Laser Technology (GB) , Applied Surface Science (Netherland), J.Phys.Chem. (USA), Thin Solid films , Physica b , J.Phys.Chem.B)*

- **Co-organiser** of Yearly Nanoscience School France-Maghreb (Morocco, Algeria, Tunisia) and member of several scientific committees of international conferences (France, Morocco, Romania, Ukraine, Poland)
- **Coordinator of an International Master in “Physics and Nanomaterials”** with a co-graduation agreements with 6 European universities (France, Poland, Ukraine, Bulgaria, Czech Republic) 1 university from Colombia 1 from Tunisia.
- **Coordinator of International Cooperation and Research Programs with Poland, Ukraine, Morocco, Tunisia, Mexico, Germany, China**

## **Seminar**

# **Electronic and optical features of Functional Nanocomposites (Guest-Host, Core-Shell) based on Silicon carbide Nanoparticles**

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### **Abstract**

Nanostructured materials based on the wide band gap semiconductor Silicon Carbide (SiC) nanoparticles as isolated objects, embedded in polymer matrixes or functionalized by thin layer (~2nm) of conducting polymers were realized. The physical properties of several nanomaterials and nanocomposites were investigated including electrical, dielectric, optical and electro-optical features. As isolated nano-objects, SiC nanoparticles exhibit modulated dielectric functions dependant on the particle sizes, on their surface states and on the involved crystalline order. The Electro-optical properties are marked by enhanced Pockels parameters due to polymer-nanoparticle interfaces effects. Alternatively, bare SiC nanoparticles under suitable annealing or hybrid core-shell functionalization of the nanoparticle surfaces are marked by enhanced electrical conductivities of the network associated to good thermo-mechanical behaviour. The physical origin of the dielectric and electrical conductivity in these nanomaterials is discussed based on the Havriliak-Negami model and the dynamics of polarons in the hybrid nanocomposites.